

### REMARKS

Reconsideration of this application and entry of this amendment is respectfully requested.

Applicant respectfully requests reconsideration of the restriction requirement in view of the prior art cited by the Examiner, which appears to be classified in the search classification for the non-elected claims. If so, the Examiner has made a *de facto* search of the entire application without serious burden, and therefore, all claims should be examined.

Applicant respectfully requests withdrawal of the objection to the disclosure in view of the amendments made therein to provide suitable headings. An Abstract of the invention has also been furnished.

Claims 1-5, 7, 8 and 10-13 have been rejected under 35 USC §103 as unpatentable over U.S. Patent No. 4,467,361 to Ohno et al in view of U.S. Patent No. 5,796,095 to Matsuyama et al. This ground of rejection is respectfully traversed.

Ohno et al discloses an apparatus for picking up an image of an object comprising a solid state image sensor having a number of image sensor components and an optical system for forming an image of an object to be picked up on the image sensor (column 1, lines 5-10). Ohno's objective is to correct the aberrations of an optical system without increasing the number of lens elements (column 1, lines 38-42).

In contrast, Applicant's claimed invention deals with the correction of wide angle optic problems by arranging a matrix of individual photosensitive detecting elements on a concave spherical photosensitive image surface so that their density is at a maximum on the optic axis of the optics system and diminishes from the optic axis toward the edge zones.

The benefit of Applicant's claimed arrangement is that the claimed camera system does not exhibit any anisotropy or geometric distortion, which are typical of conventional photographic techniques. Applicant's claimed invention makes it possible to implement different focal distances up to a 180° observation angle. See the specification at page 2, lines 28-32.

Ohno neither discloses nor suggests Applicant's claimed invention. The Examiner admits the fatal flaws of Ohno in the Office Action by stating:

*"Ohno fails to teach wherein the detecting elements are so arranged on the image surface their density is at a maximum on the optic axis and diminishes from the optic axis toward the edge zones." (page 5 of Office Action at lines 8-10).*

Recognizing the deficiencies of Ohno et al, the Examiner additionally relies on U.S. Patent No. 5,796,095 to Matsuyama et al. However, the combination of Matsuyama et al with Ohno et al does not resolve the deficiencies of the rejection but rather compounds them.

Matsuyama et al is unrelated to Applicant's claimed invention. Matsuyama et al discloses an object field recognizing sensor and an optical apparatus that can obtain a desired one of two kinds of object field information while preventing the generation of noise (column 2, lines 6-9). Matsuyama also discloses an object field recognizing area sensor comprising a plurality of picture elements wherein the picture element pitch of the central portion is made denser than the picture element pitch of the marginal portion (column 2, lines 10-15).

In significant contrast to Applicant's claimed invention, Matsuyama uses a planar image sensor surface wherein the resolution of the

center region is greater than in the peripheral regions. This is significantly different from Applicant's claimed invention, which comprises a concave spherical image surface, wherein the resolution is at a maximum at the optic axis and diminishes, for example, following Gaussian distribution, from the optic axis toward the edge zones.

Therefore, it is respectfully submitted that the Examiner's combination of the disparate teachings of Matsuyama and Ohno et al is unjustified, and provides no reasonable basis to suggest Applicant's claimed invention in an obvious manner.

Thus, there is no motivation or incentive from the combination to make it obvious to one of ordinary skill in the art to arrange the detecting elements of the image surface in such a manner that their density is at a maximum on the optic axis and diminishes toward the edge zones. Accordingly, it is respectfully requested that this ground of rejection be reconsidered and withdrawn.

The remaining rejected claims 2-5, 7, 8 and 10-13 are dependent on claim 1 and include its limitations. Therefore, these claims should also be allowable based on the allowability of claim 1. In addition, Applicant also respectfully disagrees with the Examiner's further reasons regarding the relevancy of Ohno et al and Matsuyama et al to these dependent claims.

Thus, with regard to the rejection of claim 2, the Examiner compares the density of pixels in claim 1 with figure 1 of Matsuyama and maintains that it is apparent that the same density pattern for CCD elements exists. Applicant respectfully disagrees and requests the Examiner to explain the specific basis for his reasoning and conclusions, and show where these conclusions are supported in the references.

With regard to the rejection claims 4 and 5 the Examiner takes "Official Notice" that it is common to have photodetecting elements in the order of one hundred thousand and as the number of photodetecting elements increase the quality of the picture increases. Applicant respectfully requests that the Examiner explain how such "Official Notice" became part of the prior art rejection, and to substantiate his position with prior art rather than unsupported speculation.

With regard to the rejection of claims 10-13, the Examiner again takes "Official Notice" that it is obvious to have a display device for a computer and a camera that is still, moving or monitoring camera to display different kinds of images remotely, and combines this "Official Notice" with the references.

Applicant takes issue with the Examiner's unsubstantiated conclusions in the "Official Notice," which are not based on prior art but rather on unsupported speculation. Accordingly, Applicant respectfully requests the Examiner provide prior art support for such "Official Notice," and show how this prior art in combination makes Applicant's claimed invention obvious to one skilled in the art.

The rejection of dependent claim 6 under 35 USC §103 as being unpatentable over Ohno et al, Matsuyama et al, in further view of U.S. Patent No. 6,178,046 to Broome et al is respectfully traversed. Claim 6 is dependent on claim 1 and incorporates its limitations. The deficiencies of Ohno and Matsuyama have already been discussed and are equally applicable here.

The further of combination of Broome et al compounds rather than resolves the deficiency of the rejection. The Examiner admits that:

*"Ohno in view of Matsuyama fails to teach that the point spread function (PSF) produced by the optics integrates over several detecting elements to prevent aliasing." (pages 7-8 of Office Action)*

Broome et al does not resolve these deficiencies and discloses a method and apparatus for providing an anti-aliasing diffractive aperture to reduce aliasing effects in an optical system. Broome uses diffraction at the aperture stop to introduce spreading of a point image. The aperture stop includes an array of apertures whose total area provides the light gathering capacity required of the optical system (column 2, lines 32-38). Broome's approach is quite different from the claimed invention, wherein the anti-aliasing is prevented because the half value of the point spread function (PSF) of the lens is greater than the density of the sensor elements.

The Examiner has not shown any reasonable basis or incentive to combine Broome with Ohno and Matsuyama to make Applicant's claimed invention obvious to one skilled in the art. Accordingly, reconsideration and withdrawal of this ground of rejection is respectfully requested.

The rejection of claim 9 under 35 USC §103 as unpatentable over Ohno et al, Matsuyama et al, in further view of U.S. Patent No. 5,004,328 to Suzuki et al is also respectfully traversed. The deficiencies of Ohno et al and Matsuyama et al have already been discussed and are equally applicable here. These deficiencies are not resolved but compounded by the further combination of Suzuki et al.

The Examiner admits on page 8 of the Office Action that:

*"Ohno in view of Matsuyama fails to teach a fish eye lens having a recording angle of 180 degrees."*

Suzuki et al is unrelated to Applicant's claimed invention and discloses a spherical lens composed of a spherical shell-shaped lens of a medium of a refractive index  $n_1$  and a concentric sphere-shaped lens of a medium index  $n_2$  positioned inside the spherical shell-shaped lens, wherein  $n_1 > n_2$  (column 2, lines 19-24).

Neither Ohno, Matsuyama, nor Suzuki, alone or in combination, disclose or suggest Applicant's claimed camera system wherein there is a matrix of individual photosensitive detecting elements and wherein the detecting elements are arranged on the image surface so that their density is at a maximum on the optic axis and diminishes on the optic axis toward the edge zones.

Therefore, there is little, if any, incentive for one of ordinary skill in the art to combine the teachings of Suzuki, Ohno and Matsuyama et al to disclose Applicant's claimed invention in an obvious manner. Reconsideration and withdrawal of this ground of rejection is respectfully requested.

The rejection of claims 14 and 15 under 35 USC §103 as unpatentable over Ohno et al, Matsuyama et al, in further view of U.S. Patent No. 6,118,474 to Nayar is respectfully traversed. The deficiencies of Ohno et al and Matsuyama et al have already been discussed and are equally applicable here.

Moreover, the Examiner admits that Ohno fails to teach a system that comprises two adjacent semi-space recording cameras directed in the same or opposite direction for the recording of a stereo image of the semi-space and for the recording of the whole space (page 9 of Office Action).

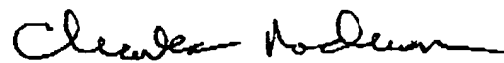
It is respectfully submitted that the combination of Nayar compounds rather than resolves the deficiencies of the rejection.

Nayar et al is unrelated to Applicant's claimed invention and discloses an omni-directional imaging apparatus for sensing an image of a scene from a single viewpoint that includes a truncated, substantially paraboloid-shaped reflector position to orthographically reflect principal rays of electromagnetic radiation radiating from the scene (column 3, lines 11-17).

Nayar's planar image sensor captures a circular image from a semi-space. This arrangement is unrelated to Applicant's claimed invention. Thus, it is respectfully submitted that the combination of references would not obviously suggest Applicant's claimed invention to one skilled in the art. Accordingly, reconsideration and withdrawal of this ground of rejection is respectfully requested.

In view of the above arguments and amendments, it is respectfully submitted that this application is now in condition for allowance and such favorable action is respectfully requested.

Respectfully submitted,



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